

5 What is claimed is:

10 1. A method of carrying out a data transfer to and from a flash memory array performed by a compact flash controller comprising the steps of:  
inserting and powering up a compact flash memory device containing a plurality of compact flash memory arrays;  
detecting presence of a plurality of compact flash memory arrays wherein the compact flash controller detects the number of compact flash memory arrays that comprise the compact flash memory device;  
initializing controller, a plurality of flash memory modules as well as other internal components;  
partitioning each of the flash memory arrays in accordance to the parameters of the configuration information table stored in a read-only memory of the compact flash controller;  
determining which interface specification is to be used for to transfer data, address information and control signals to and from the host device;  
detecting a command sequence to be processed;  
translating the specified command sequence into a set of data transfer operative elements; and  
executing the specified data transfer.

25 2. The method as recited in claim 1, wherein if the state of received signal is high then a PCMCIA/ATA interface is selected to receive and transfer data, address information between flash memory and a host device.

30 3. The method as recited in claim 1, wherein if the state of received signal is low then a true IDE interface is selected to receive as well as transfer of data, address information between flash memory and a host device.

4. The method as recited in claim 1, wherein the set of data transfer operative elements that has been translated from the specified command

5 sequence directs the compact flash controller to writes data and address content  
received from the host device to at least one sector of a flash memory array.

10 5. The method as recited in claim 1, wherein the set of data transfer  
operative elements that has been translated from the specified command  
sequence directs the compact flash controller to reads data and address content  
from at least one sector of a flash memory array.

15 6. The method as recited in claim 1, wherein the compact flash  
controller continues to perform each of the data transfer operative elements until  
a data transfer is complete.

20 7. The method as recited in claim 1, wherein the compact flash  
controller stands by waiting a predetermined time period for the next data  
transfer operation.

25 8. The method as recited in claim 7, wherein after if the a predetermined  
time period elapses, the compact flash controller suspends any operative activity  
and waits until a request to execute a new command sequence is detected.

30 9. A system for controlling the transfer of data between flash memory  
and a host device comprising:

circuitry of the compact flash controller configured to insert and power up a  
compact flash memory device containing a plurality of compact flash memory  
arrays;

circuitry of the compact flash controller configured to detect presence of a  
plurality of compact flash memory arrays wherein the compact flash controller  
detects the number of compact flash memory arrays that comprise the compact  
flash memory device;

5           circuitry of the compact flash controller configured to initialize controller, a plurality of flash memory modules as well as other internal components;

          circuitry of the compact flash controller configured to partition each of the flash memory arrays in accordance to the parameters of the configuration information table stored in a read-only memory of the compact flash controller;

10           circuitry of the compact flash controller configured to determine which interface specification is to be used for to transfer data, address information and control signals to and from the host device;

          circuitry of the compact flash controller configured to detect a command sequence to be processed;

15           circuitry of the compact flash controller configured to translate the specified command sequence into a set of data transfer operative elements; and

          circuitry of the compact flash controller configured to execute the specified data transfer.

20           10.     The system as recited in claim 9, wherein the circuitry of the compact flash controller initiates PCMCIA/ATA interface is selected to receive as well as transfer of data, address information between flash memory and a host device, if the state of the received signal is high.

25           11.     The apparatus as recited in claim 9, wherein the circuitry of the compact flash controller initiates IDE interface is selected to receive as well as transfer of data, address information between flash memory and a host device, if the state of the received signal is low.

30           12.     The apparatus as recited in claim 9, wherein the circuitry of the compact flash controller initiates a write to at least one data sector of a flash memory array of data and address content received from the host device, if the the set of data transfer operative elements translated from the command sequence command specifies such an operation.

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13. The apparatus as recited in claim 9, wherein the circuitry of the compact flash controller initiates a read from at least one data sector of a flash memory array of the stored data and address content, if the set of data transfer operative elements translated from the command sequence specifies such an operation.

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14. The apparatus as recited in claim 9, wherein the circuitry of the compact flash controller continues to perform each of the data transfer operative elements until the data transfer is complete.

15. The apparatus as recited in claim 9, wherein the circuitry of the compact flash controller stands by waiting a predetermined time period for the next data transfer operation.

16. The apparatus as recited in claim 15, wherein the circuitry of the compact flash controller suspends any operative activity and waits until a request to execute a new command sequence to be detected, if the a predetermined time period elapses.

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17. A computer program product that includes a computer useable medium having computer readable code embodied therein controlling the transfer of data between flash memory and a host device, the computer program product comprising:

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a computer readable program code devices of the compact flash controller configured to insert and power up a compact flash memory device containing a plurality of compact flash memory arrays;

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a computer readable program code devices of the compact flash controller configured to detect presence of a plurality of compact flash memory arrays

5 wherein the compact flash controller detects the number of compact flash memory arrays that comprise the compact flash memory device;

a computer readable program code devices of the compact flash controller configured to initialize controller, a plurality of flash memory modules as well as other internal components;

10 a computer readable program code devices of the compact flash controller configured to partition each of the flash memory arrays in accordance to the parameters of the configuration information table stored in a read-only memory of the compact flash controller;

15 a computer readable program code devices of the compact flash controller configured to determine which interface specification is to be used for to transfer data, address information and control signals to and from the host device;

a computer readable program code devices of the compact flash controller configured to detect a command sequence to be processed;

20 a computer readable program code devices of the compact flash controller configured to translate the specified command sequence into a set of data transfer operative elements; and

a computer readable program code devices of the compact flash controller configured to execute the specified data transfer.

25 18. The computer program product as recited in claim 17, wherein if the state of the received signal is high then the computer readable program code devices of the compact flash controller initiates a PCMCIA/ATA interface is selected to receive as well as transfer of data, address information between flash memory and a host device.

30 19. The computer program product as recited in claim 17, wherein if the state of the received signal is low then the computer readable program code devices of the compact flash controller initiates a true IDE interface is selected to receive as well as transfer of data, address information between flash memory and a host device.

5           20.    The computer program product as recited in claim 17, wherein the computer readable program code devices of the compact flash controller writes to at least one sector of a compact flash memory array, data and address content received from the host device.

10           21.    The computer program product as recited in claim 17, the computer readable program code devices of the compact flash controller reads from at least one sector of a compact flash memory array data and address content that is transferred back to the host device.

15           22.    The apparatus as recited in claim 9, the computer readable program code devices of the compact flash controller continues to perform each of the data transfer operative elements until the data transfer is complete.

20           23.    The computer program product as recited in claim 17, the computer readable program code devices of the compact flash controller stands by waiting a predetermined time period for the next data transfer operation.

25           24.    The computer program product as recited in claim 23, the computer readable program code devices of the compact flash controller suspends any operative activity and waits until a request to execute a new command sequence to be detected, if the a predetermined time period elapses.